

**STUDIES OF THE GYPONINAE: THE GENUS
COSTANANA AND FIVE NEW SPECIES
(Homoptera: Cicadellidae)¹**

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ABSTRACT

Five previously described species, *Costanana dunda* DeLong & Freytag (the type species), *C. nana* (Fowler), *C. flavicosta* (Stal), *C. praecellens* (Stal) and *C. minuta* (Spangberg) are placed in this genus. Five species, *C. helvacosta* n. sp., *C. cella* n. sp., *C. flavina* n. sp., *C. asymmetrica* n. sp. and *C. costata* n. sp. are described as new. A key for the identification of the species is presented and the genital structures of the known males and females are illustrated.

During the study of the genus *Gypona* the species now placed in *Costanana* were separated from the other species and retained for further study. They are similar to the species of *Gypona* in coloration and appearance, small in size, 6.5 to 8.5 mm in length and are known to occur in Argentina, Brazil, British Honduras, Colombia, Mexico, Panama and Peru.

The genus *Costanana* was recently described by DeLong and Freytag (1972). The type species was designated as *C. dunda* DeLong and Freytag. In addition to *C. dunda* four previously described species, *Gypona flavicosta* Stal, *G. minuta* Spangberg, *G. nana* Fowler and *G. praecellens* Stal are placed in *Costanana* and five species are described at this time.

The species of *Costanana* have a broadly rounded, thin margined crown. The fore wings are normally brown with the basal half on the costal margins broadly yellow. This genus is closely related to *Gypona* but differs from the species of that genus by the smaller size, comparatively broader head, less prominent humeral angles of the pronotum and the long narrow male plates, which are usually pointed at the apex.

Key to males of *Costanana*

- 1 Aedeagus with two slender processes arising at base and extending parallel with shaft almost to apex 2
1' Aedeagus without basal processes paralleling shaft 3
2(1) Aedeagal shaft appearing uniform in width (ventral view) and

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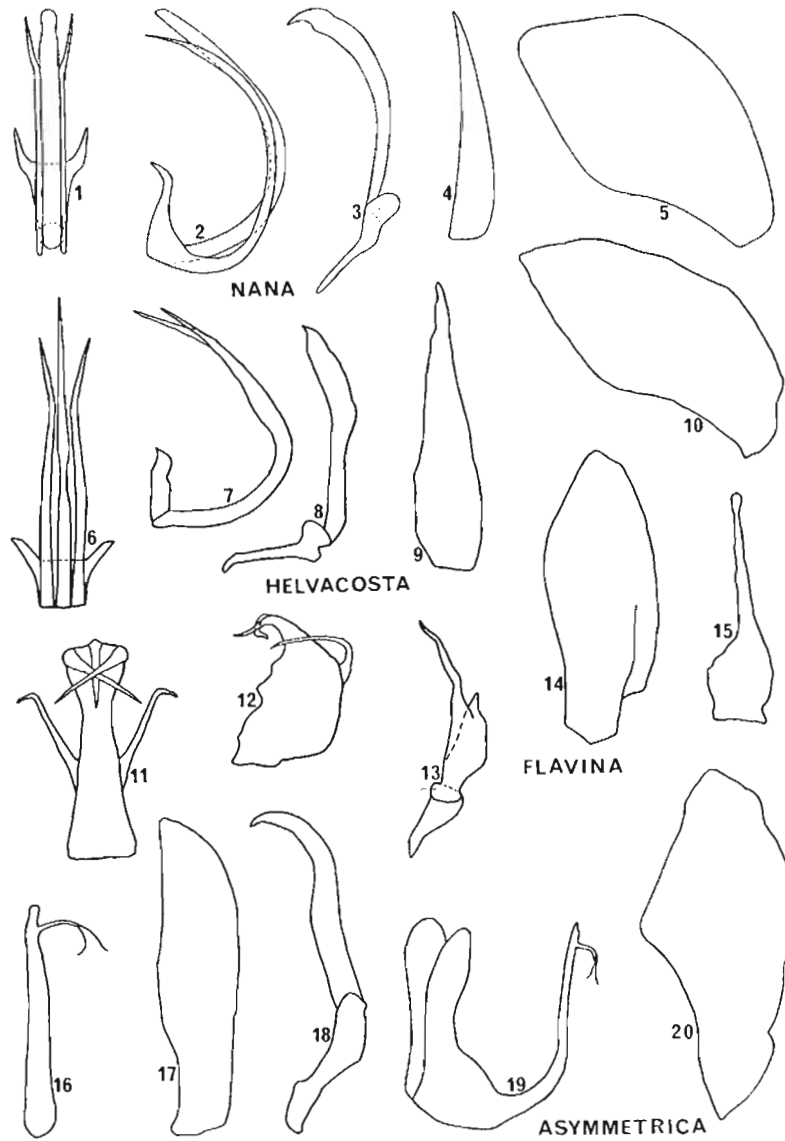
- blunt at apex, not longer than paralleling processes
 *nana* (Fowler) (Figs. 1-5)
- 2' Aedeagal shaft more slender, not uniform in thickness (ventral view), apex slender, pointed, longer than paralleling processes *helvacosta* n. sp. (Figs. 6-10)
- 3(1') Aedeagal shaft elongate in form 4
- 3' Aedeagal shaft broad in lateral view, globose in form
 *flavina* n. sp. (Figs. 11-15)
- 4(3) Aedeagus with one subapical process which is bifid on apical portion *asymmetrica* n. sp. (Figs. 16-20)
- 4' Aedeagus with two or more apical and/or subapical processes .. 5
- 5(4') Aedeagus with one pair of apical processes 6
- 5' Aedeagus with two pairs of apical and subapical processes
 *cella* n. sp. (Figs. 21-25)
- 6(5) Style with blade broadened near base then gradually tapering to a sharp-pointed sickle-shaped apex
 *costata* n. sp. (Figs. 26-30)
- 6' Style slender throughout 7
- 7(6') Aedeagal apical processes extending laterad then curved basad. Apices of plates blunt, curved
 *flavicosta* (Stal) (Figs. 31-35)
- 7' Aedeagal apical processes curved basad along shaft; apices of plates bluntly pointed ... *dunda* DeLong & Freytag (Figs. 36-40)

Key to female of *Costanana*

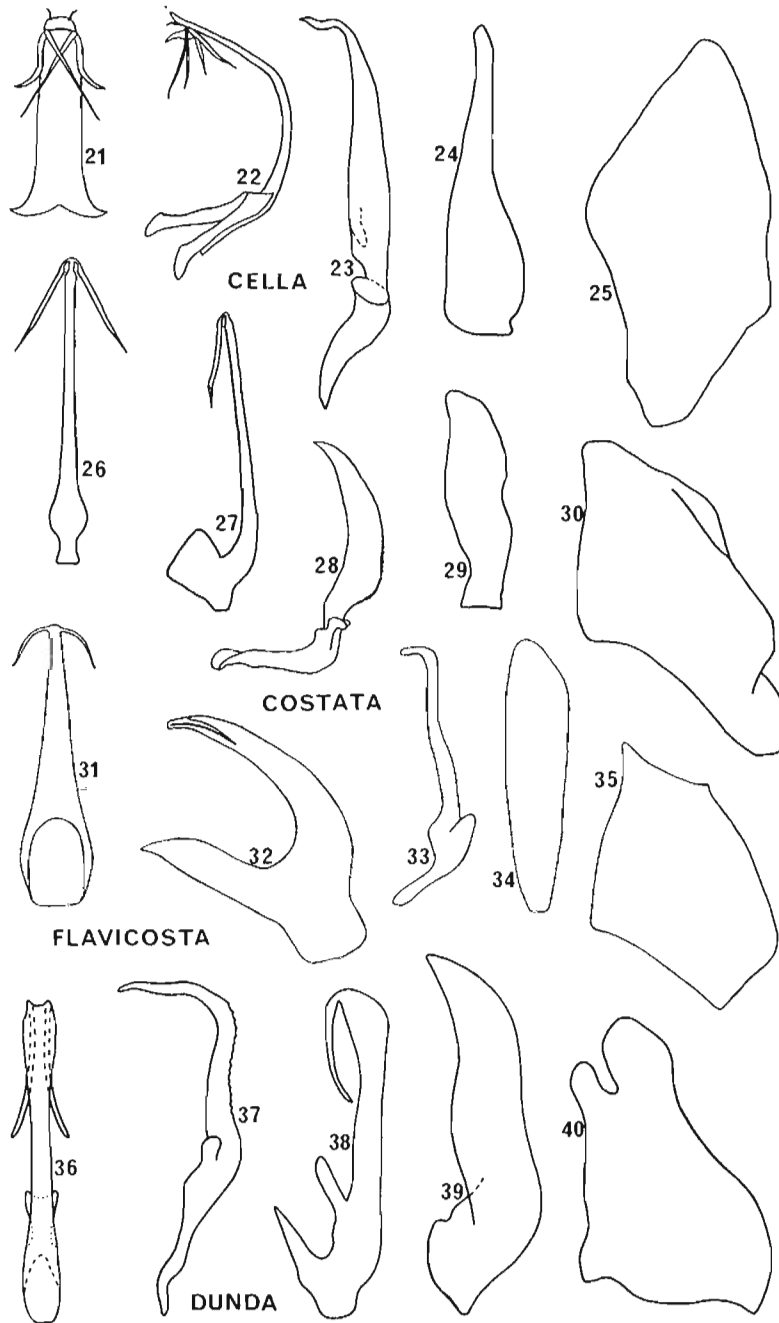
- 1 Lateral angles of seventh sternum produced and rounded 2
- 1' Lateral angles of seventh sternum scarcely produced, rounding to posterior margin *praecellens* (Stal) (Fig. 41)
- 2(1) Posterior margin of seventh sternum with a pair of median rounded lobes separated by a deep U-shaped excavation
 *flavina* n. sp. (Fig. 42)
- 2' Posterior margin of seventh sternum with a broad slightly produced median lobe which is slightly notched at middle ...
 *minuta* (Spangberg) (Fig. 43)

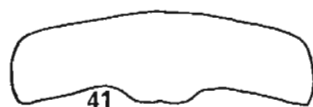
Costanana nana (Fowler)
(Figs. 1-5)*Gypona nana* Fowler 1903 p. 315

Length of male 5 mm., female 6 mm. Crown broad, rounded, more than twice as wide between eyes at base as median length. Crown bluntly angled with front. Ocelli widely separated, more distant from median line than from eyes. Color pale brown. Pronotum with lateral margins bright yellow, anterior portion with a row of dark brown spots. Scutellum with a pair of small round dark brown spots on anterior portion. Forewings pale brown, veins yellow, anterior half



FIGS. 1-43. Figs. 1-5. *Costanana nana* (Fowler); 1—aeedeagus, ventrally. 2—aeedeagus, laterally. 3—style, laterally. 4—plate, ventrally. 5—pygofer, laterally. Figs. 6-10. *C. helvacosta* n.sp.; 6—aeedeagus, ventrally. 7—aeedeagus, laterally. 8—style, laterally. 9—plate, ventrally. 10—pygofer, laterally. Figs. 11-15. *C. flavina* n.sp.; 11—aeedeagus, ventrally. 12—aeedeagus, laterally. 13—style, laterally.

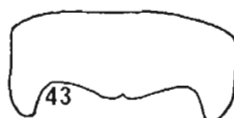




PRAECELLENS



FLAVINA



MINUTA

14—pygofer, laterally. 15—plate, ventrally. Figs. 16–20. *C. asymmetrica* n.sp.; 16—aeedeagus, ventrally. 17—plate, ventrally. 18—style, laterally. 19—aeedeagus, laterally. 20—pygofer, laterally. Figs. 21–25. *C. cella* n.sp.; 21—aeedeagus, ventrally. 22—aeedeagus, laterally. 23—style, laterally. 24—plate, ventrally. 25—pygofer, laterally. Figs. 26–30. *C. costata* n.sp.; 26—aeedeagus, ventrally. 27—aeedeagus, laterally. 28—style, laterally. 29—plate, ventrally. 30—pygofer, laterally. Figs. 31–35. *C. flavicosta* (Stal); 31—aeedeagus, ventrally. 32—aeedeagus, laterally. 33—style, laterally. 34—plate, ventrally. 35—pygofer, laterally. Figs. 36–40. *C. dunda* DeLong & Freytag; 36—aeedeagus, ventrally. 37—style, laterally. 38—aeedeagus, laterally. 39—plate, ventrally. 40—pygofer, laterally. 41—*C. praecellens* (Stal) ♀ seventh sternite. 42. *C. flavina* n.sp. ♀ seventh sternite. 43. *C. minuta* (Spangberg) ♀ seventh sternite.

of costal margin conspicuously bright yellow and with two blotches of pale yellow on posterior half of costal area.

Male genitalia with plates long, narrow, sloping from base to pointed apex. Style in lateral view elongate, enlarged toward apex, curved dorsally and sharp-pointed at apex. Aedeagus in lateral view curved, sickle-shaped, elongate, slender, with a pair of lateral processes which arise near the base and are tapered and pointed at apex. In ventral view the aedeagus appears broader with the slender lateral processes bent outwardly and pointed at apex.

Female genitalia with lateral angles of seventh sternite produced, rounded to posterior margin, which is slightly excavated each side of a pair of broad, slightly produced lobes occupying the middle half of the segment and which are separated by a broad U-shaped notch.

Type: Male holotype from Mexico in the British Museum of Natural History collection.

Costanana helvacosta n. sp.
(Figs. 6-10)

Length of male 6.5 mm. Female unknown. Crown broadly rounded, more than one and one-half times as wide between eyes at base as median length. Color: brown, head darker brown, a yellow band along lateral margin of pronotum and costal margin of forewings except a short distance near middle. Apical veins of forewing yellow.

Male genitalia with long slender, narrow, pointed plates. Styles almost sickle shaped, the "blade" broader than shaft, bent outwardly, pointed at apex. Aedeagus with shaft narrow, broadened on apical third, apex narrow pointed; a long narrow process arises on each side of shaft near base and extends almost to apex of shaft. In lateral view aedeagus curved at base forming a blunt recurved baso-dorsal portion.

Type: Holotype male, Minca, Columbia, May 1898, Acc. No. 1999 in the Carnegie Museum Collection.

Costanana flavina n. sp.
(Figs. 11-15,42)

Length of male 6.5 mm., female 7.4 mm. Crown almost twice as broad between eyes at base as median length. Color: brown, ocelli red. A yellow stripe along lateral margin of pronotum and costa broadly bright yellow on basal third; median third black, a broad rounded yellow spot on costa just posterior to black marking. Apical veins yellow.

Male genitalia with elongate plates which are broad at base gradually narrowed to middle then extended as very slender portions to narrow blunt apices. Style narrow at base, curved ventrally and abruptly broadened on ventral margin forming a spur at base of enlarged portion and a bluntly pointed spine at apex. Style narrowed where spine is produced; apical half narrow, curved near apex which is sharp pointed. Aedeagus short and broad. In ventral view shaft broad at base, narrowed at middle, broadened apically, a pair of lateral processes arising about one fourth distance from base, curved laterally not reaching apex of shaft. A pair of terminal spines arise each side of apex and extend across dorsal surface of shaft. Female genitalia with lateral angles of seventh sternum produced and rounded between which the posterior margin is broadly, shallowly excavated each side of a median produced, rounded lobe, which is roundedly notched at middle one-fifth the distance to base.

Type: Holotype male labeled Brazil. Allotype female, Nova

Teutonia, Santa Catharina, Brazil, Oct. 17, 1952, F. Plaumann. Paratypes: 1 ♀ same as allotype except Nov. 6, 1962; 1 ♂ same as allotype except Sept. 26, 1962; 1 ♀, 2 ♂s, Brazil, Nova Teutonia, 27°11' B, 52° 23' L, Fritz. Plaumann; 1 ♀ Nova Teutonia, S. C., Brazil, Sept. 8, 1944, Bennett, Plaumann; 1 ♂ Nova Teutonia, S. C., Brazil, Dec. 16, 1953, F. Plaumann; 1 ♂ Colombia, Br. Honduras, Apr. 1932; 1 ♂ Loreta, Missionas, Arg., XII-8, 1931, A. A. Ogoblin; 1 ♀ Pinhal, S. C., Brazil, Dec. 1947, A. Maller Coll., (Frank Johnson Donor); 1 ♀ Panama, La Jolla, 26-IV-51, F. S. Blanton Collector.

Holotype and paratype in the DeLong Collection. Allotype and paratypes in the North Carolina State University Collection. Paratypes in the U. S. National Museum Collection.

Costanana asymmetria n. sp.

(Figs. 16-20)

Length of male 8 mm. Female unknown. Crown produced, rounded, one and one half times as wide between eyes at base as median length. Color, crown pronotum and scutellum dull greenish yellow. Forewing dull green costal margin yellowish green.

Male genitalia with elongate plates almost four times as long as broad, apices narrow, blunt, rounded. Style with blade almost uniform in width, slightly narrowed on apical third which is curved dorsally. Apex narrow, pointed. Aedeagal shaft short, narrowed apically, bearing a lateral process on one side near apex, one third length of shaft, bifid at half its length, forming two slender curved apical portions; basal portion and the recurved dorsal portion of shaft thick and much larger than the slender shaft.

Type: Holotype male labeled "Schott, Brasilien" in the Vienna Museum.

Costanana cella n. sp.

(Figs. 21-25)

Length of male 7.5 mm. Female unknown. Crown broadly, roundedly produced, almost twice as wide between eyes at base as median length. Color: crown, pronotum dark brown. Scutellum brown, apical portion yellow. Forewings brownish yellow, subhyaline; costal margin bright yellow on basal half and apical third, between which the margin is broadly bordered with dark brown. Apical veins yellow. Face pale brown.

Male genitalia with plates slender, elongate tapered to narrow pointed apices, heavily clothed with long pubescence. Style broad on basal half of blade then narrowed and bent at almost a right angle to form a narrow apical fifth which protrudes outwardly and is pointed at apex. Aedeagal shaft broad with a pair of bifid subapical processes. The inner spine of each process longer and extending across the dorsal surface of shaft. An elongate basodorsal portion arises from base of shaft.

Type: Holotype male Brazilien, Nova Teutonia, 27°11' B. 52°23' L. 1939. Fritz Plaumann, in the North Carolina State University Collection.

Notes: This male specimen most nearly resembles the female holotype of *praezellens* and may prove to be the male of that species.

Costanana costata n. sp.
(Figs. 26-30)

Length of male 6.0 mm. Female unknown. Crown with margin broadly rounded, more than one and one-half times as wide between eyes at base as median length. Color various densities of brown. Forewings with costa broadly yellow on basal two thirds. Veins on apical portion yellow.

Male genitalia with elongate, narrow plates, three times as long as wide, with curved apices. Style blade-like, broad near base, gradually curved and tapered to a narrow sharp-pointed apex. Aedeagal shaft long, slender, narrowed just before apex and bearing a pair of apical processes which curve and extend basad, one-third the distance to base.

Type: Holotype male labeled "Rio de Janeiro, Brazil", in the C. F. Baker Collection in the U. S. National Museum.

Costanana flavicosta Stal
(Figs. 31-35)

Gypona flavicosta Stal 1862 p. 46

Length of male 8.5 mm. Crown produced, rounded, two-thirds as long at middle as basal width between eyes. Color: dull greenish-yellow, margin bordered with yellow. Lateral margins of pronotum and costal margin of forewing yellow.

Male genitalia with elongate plates, four times as long as broad with apex tapered, blunt, rounded. Style with blade narrow, elongate, bent dorsally at a right angle just before narrow blunt apex. Aedeagal shaft tapered from base to narrow apex which bears a pair of short apical processes which curve laterally and basad. Aedeagus with a large basodorsal portion which is more than half the length of shaft.

Type: Holotype male labeled "Rio Jan., F. Sohlb." in the Stockholm Museum Collection.

Notes: No other specimens have been available for study.

Costanana dunda DeLong & Freytag
(Figs. 36-40)

Costanana dunda DeLong & Freytag 1972 p. (?)

Length of male 7 mm. Female unknown. Crown broadly, roundedly produced, almost twice as wide between eyes at base as median

length. Color: brown with dark brown and yellow markings. Crown pale brown with a black line on margin; eyes and ocelli, red. Pronotum brown, a round black spot on each side behind eye at half the length of pronotum. Scutellum brown. Forewings brown, costal margin to apical cells broadly pale yellow, two pair of dark brown spots along commissure and a dark brown spot on costa at inner end of first apical cell. Face, yellow.

Male genitalia with plates almost four times as long as broad, apical fourth tapered to a bluntly pointed tip. Styles long and slender, the apical fifth bent at right angles, extending dorsally, slightly enlarged before apex, then tapered to a pointed tip. Aedeagal shaft medium in size, enlarged just before apex, bearing a pair of terminal processes which arise dorsally and curve basally about half distance to base. Pygofer with a rounded apical portion beyond a sulcus and a finger-like process arising on dorsal surface at sulcus.

Types: Holotype male from Mexico in the DeLong collection.

Costanana praezellens (Stal)

(Fig. 41)

Gypona praezellens Stal 1862 p. 47

Length of female 6.0 mm. Crown broadly rounded, more than one and one-half times as wide between the eyes at base as median length. Crown angled with front, not thin, foliaceous, but slightly depressed just beneath margin. Color brown, head darker brown, costal margin of forewing with yellow on basal third and apical fourth.

Female genitalia with posterior margin of seventh sternum almost transverse, slightly roundly produced on embrowned median fourth.

Type: Holotype female labeled "Brazil" in the Stockholm Museum.

Note: Another female specimen from Mafra. S. Cath., Brazil, XII, 1930, with the type specimen in the Stockholm Museum is apparently the same species. The male of the species could not be determined.

Costanana minuta (Spangberg)

(Fig. 43)

Gypona minuta Spangberg 1878 p. 37

Length of female 6.75 mm. Male unknown. Crown broadly rounded, more than two and one-half times as wide between eyes at base as median length. Color: crown and pronotum dull yellow, with a dark brown area behind each eye and a small round black spot behind each dark area. Scutellum yellow with black spots on basal angles. Forewings yellowish subhyaline, veins dark brown, costal area paler yellow.

Female genitalia with seventh sternum with strongly produced bluntly angled lateral angles which are decidedly longer than posterior

margin; margin broadly shallowly excavated each side of a slightly produced median lobe which is slightly notched at middle.

Type: Holotype female labeled "Bogota, Lindig" in the Stockholm Museum Collection.

Notes: No other specimens have been available for study.